US EPA Response to Comments:
Blythe II Prevention of Significant Deterioration Permit

Comment 1 : The applicant noted that the permit requires US EPA approval of the calculation method for PM 10 emissions from the cooling tower, and the applicant proposed a specific calculation method. The comment did not request any change to the permit.

Response: Since this comment speaks to how the proposed permit condition will be implemented, we have provided the comment to Rulemaking Office staff with responsibility for reviewing the proposed calculation method. US EPA staff will work with the applicant to explain the data that will be necessary to review the applicant's proposed approach in Region 9 and at our Headquarters Office. No permit change would be necessary to approve the applicant's proposal, and we have not changed the permit conditions.

Comment 2: The permit applicant suggested that we state in section X.C. that the emission limits do not apply during start up and shut downs.

Response:
We agree that the emission limits in X.C are superceeded by the start up and shut down requirements in section X.E., as stated in Condition X.E., and we have made the applicant's suggested clarification.

Comment 3: The permit applicant requested that US EPA revise the permit conditions to state that short-term BACT limits do not apply during the one-time commissioning period. This is the time period when the applicant has completed construction, and is testing and tuning equipment to make sure that it operates properly.

Response:
We agree and have revised section X of the permit so that the emission limits stated in the applicants comment letter do not apply prior to "shakedown" periods prior to initial performance testing. We recognize that BACT technology may not function effectively during one-time initial equipment testing and tune-up. US EPA has also revised section III of the permit to specifically remind the applicant that the requirement for good air pollution control applies at all times, including "shakedown" periods, to minimize emissions during these periods as much as possible.

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Mr. Ed Pike (AIR-3)
EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Subject:
Comment on Draft PSD for Blythe Energy Project Phase II

Environmental Permitting & Planning

Date:
February 28, 2007

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Our ref:
SA061300.0001

Dear Mr. Pike:

On behalf of our client, Caithness Blythe II (CB II), ARCADIS U. S., Inc. (ARCADIS) submits the following three comments on the referenced document.

1. **Regarding section X. *Special Conditions*:** Clarification is required concerning the fact that emission limits and various other conditions do not apply during the commissioning period, when the equipment is initially starting up and undergoing testing and tuning. The term "initial startup," is used in X. *Special Conditions* (note specifically subsections B. and C.), however, 40 CFR Part 60.2 *Definitions* does not define "initial startup." 40 CFR 60.2 states: "*Startup* means the setting in operation of an affected facility for any purpose." Thus, the facility would likely be out of compliance during commissioning, according to this definition. Appropriate wording should be added to exempt emissions during commissioning from meeting the limits required during normal operation, and to be consistent with the verbiage in the CEC's Commission Decision (page 16):

   "The initial commissioning of a power plant refers to the time frame between completion of construction and the consistent production of electricity for sale to the market. Normal operating emission limits usually do not apply during initial commissioning procedures. The turbines will go through several series of tests during initial commissioning. Commissioning is a one-time event, subject to controls to minimize emissions. Therefore, there are no significant air quality impacts from facility commissioning. All startup scenarios result in emissions that are higher than normal operating emission limits; however, the number of startup events and their duration are controlled by District rules limiting daily and annual emissions. Thus, there is no significant air quality impact from facility startup."

Note that air emissions during commissioning still accrue toward annual limitations imposed by MDAQMD. Other conditions also apply (see CEC Commission Decision Conditions AQ-19 through AQ-25)

2. **Regarding section X.C. *Gas Turbine Limits for NOx (calculated as NO_2) and CO*:**

We suggest adding the following underlined clause to the first sentence....."Except as noted below in E below, on and after the date of....."

3. **Special condition X.G.3. Cooling Tower and Evaporative Cooler Emission Limits states:**

> "The maximum hourly PM_{10} emission rate from this cooling tower and the evaporative condenser combined shall not exceed 2.0 lbs/hr. Permittee shall calculate PM_{10} emission rate using an US EPA-approved calculation based on the TDS and water circulation rate."

In the interest of clarity and specificity, we would like to provide the calculation by which the 2.0 lb/hr emission rate was determined and propose that this formula be used for compliance determination. This is the same formula that the Mojave Desert Air Quality Management District (MDAQMD) will be using in their protocol to evaluate compliance with the Final Determination of Compliance that they issued on May 3, 2004, and endorsed by the California Energy Commission in their Commission Decision (see conditions AQ-40 and AQ-46), dated December 2005.

The formula used to determine the 2.0 lb/hr rate is based on the assumption that one-half of the total drift PM is PM_{10}. (Other documentation supported a lower fraction of total PM being PM_{10}, however, CB II agreed to the one-half factor in the interest of expediting the permitting process.)

The formula used to calculate the PM10 emission limit from both towers is:

For total PM_{10}:

$$PM_{10} = \frac{0.5\ PM_{10}}{PM} \times \frac{(146{,}000 + 17{,}000)\ (gal}{Minute)} \times \frac{8.34\ lb\ H_2O}{gal} \times \frac{0.0006\ lb\ drift}{100\ lb\ H_2O} \times \frac{8{,}190\ lbs}{10^6\ lb\ drift} \times \frac{60\ min}{hr} = 2.0\ \frac{lb}{hr}$$

Approved Factor | *Circulation Rate* | *Drift Rate* | *TDS*

We submit that the formulas used to determine cooling tower compliance be the same as approved by MDAQMD; i.e.:

a. For total PM_{10} from the main cooling tower and the evaporative condenser tower:

$$PM_{10}\ (Main) = \frac{0.5\ PM_{10}}{PM} \times \frac{Main\ Circ.\ Rate\ (gal}{Minute)} \times \frac{8.34\ lb\ H_2O}{gal} \times \frac{0.0006\ lb\ drift}{100\ lb\ H_2O} \times \frac{TDS\text{-}Main\ (lbs}{10^6\ lb\ drift} \times \frac{60\ min}{hr} = \frac{PM_{10}\text{-}Main\ lb}{hr}$$

Approved Factor | *Circ. Rate* | *Drift Rate* | *TDS*

$$PM_{10}\ (Evap.\ Cond.) = \frac{0.5\ PM10}{PM} \times \frac{Evap.\ Circ.\ Rate\ (gal}{Minute)} \times \frac{8.34\ lb\ H_2O}{gal} \times \frac{0.0006\ lb\ drift}{100\ lb\ H_2O} \times \frac{8{,}190\ lbs}{10^6\ lb\ drift} \times \frac{60\ min}{hr} = \frac{PM_{10}\text{-}Evap\ lb}{hr}$$

Approved Factor | *Circ. Rate* | *Drift Rate*

b. Therefore, total PM_{10} = PM_{10}-Main + PM_{10}-Evap = Total Cooling Towers' PM_{10} (lb/hr)

This value should then be compared to the 2.0 lb/hr limit for compliance confirmation.

If you have any questions regarding this submittal, please feel free to contact Mr. Tom Cameron at (702) 360-0186, or me.

Sincerely,

Joel Reisman
Sr. Air Quality Specialist

Copies:
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